

Material Safety Data Sheet

Potassium Persulfate

MSDS #: 7727-21-1
Revision Date: 2012-08-01
Version 0.01



This MSDS has been prepared to meet U.S. OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Workplace Hazardous Materials Information System (WHMIS) requirements.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	Potassium Persulfate
Formula	H ₂ O ₈ S ₂ 2K
Synonyms	Potassium Peroxydisulfate; Dipotassium Peroxydisulfate; Peroxydisulfuric acid, dipotassium salt; Peroxydisulfuric acid, potassium salt
Recommended use	Polymerization initiator, Etchant and cleaner for printed circuit boards, Hair bleaching formulations, Secondary oil recovery, Oxidizing agent for a variety of organic reactions.
Manufacturer	Emergency telephone number
FMC CORPORATION FMC Peroxygens 1735 Market Street Philadelphia, PA 19103 Phone: +1 215/ 299-6000 (General Information) E-Mail: msdsinfo@fmc.com	For leak, fire, spill or accident emergencies, call: +1 800 / 424 9300 (CHEMTREC - U.S.A.) +1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries) +1 303 / 595 9048 (Medical - U.S. - Call Collect)

2. Hazards identification

Emergency Overview

White, odorless crystals

Oxidizer

Decomposes in storage under conditions of moisture and/or excessive heat causing release of sulfur oxides and oxygen that supports combustion (See Section 10)

Potential health effects

Eyes

Irritating to eyes.

Skin

Irritating to skin. May cause sensitization by skin contact.

Inhalation

May cause irritation of respiratory tract. May cause allergic respiratory reaction.

Ingestion

Harmful if swallowed.

3. Composition/information on ingredients

Ingredients

Chemical Name	CAS-No	Weight %
Potassium Persulfate	7727-21-1	>99

4. First aid measures

General advice	Remove from exposure, lie down. Show this material safety data sheet to the doctor in attendance.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids intermittently. Consult a physician. In case of contact, immediately flush eyes with plenty of water. If symptoms persist, call a physician.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation develops and persists.
Inhalation	Remove from exposure, lie down. If breathing is irregular or stopped, administer artificial respiration. Call a physician immediately.
Ingestion	Do NOT induce vomiting. Call a physician or poison control center immediately. Rinse mouth. Drink 1 or 2 glasses of water.

5. Fire-fighting measures

Flash Point	Not flammable
Suitable extinguishing media	Water. Cool containers with flooding quantities of water until well after fire is out.
Unsuitable Extinguishing Media	Do not use carbon dioxide or other gas filled fire extinguishers; they will have little effect on decomposing persulfate.
Explosion Data	
Sensitivity to Mechanical Impact	not applicable
Sensitivity to Static Discharge	not applicable
Specific hazards arising from the chemical	Decomposes under fire conditions to release oxygen that intensifies the fire.
Protective equipment and precautions for firefighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA	Health Hazard 1	Flammability 0	Stability 1	Special Hazards OX
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NFPA/HMIS Ratings Legend	Severe = 4; Serious = 3; Moderate = 2; Slight = 1; Minimal = 0 Protection=J (Safety goggles, gloves, apron, combination dust and vapor respirator)
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6. Accidental release measures

Personal precautions	Keep off any unprotected persons. Avoid contact with the skin and the eyes. Avoid breathing dust. Wear personal protective equipment.
Methods for containment	Vacuum, shovel or pump waste into a drum and label contents for disposal. Avoid dust formation. Store in closed container.
Methods for cleaning up	Clean up spill area and treat as special waste.
Other	Never add other substances or combustible waste to product residues.

7. Handling and storage

Potassium Persulfate

MSDS #: 7727-21-1

Revision Date: 2012-08-01

Version 0.01

Handling

Wear personal protective equipment. Use only in area provided with appropriate exhaust ventilation. Avoid dust formation. Handle product only in closed system or provide appropriate exhaust ventilation at machinery. Avoid contact with skin and eyes. Avoid breathing dust. Remove and wash contaminated clothing before re-use. Reference to other sections.

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat. Do not store near combustible materials. Avoid contamination of opened product. Keep away from food, drink and animal feedingstuffs. Avoid formation and deposition of dust.

8. Exposure controls/personal protection

Exposure guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Potassium Persulfate 7727-21-1	TWA: 0.1 mg/m ³			
Chemical Name	British Columbia	Quebec	Ontario TWAEV	Alberta
Potassium Persulfate 7727-21-1	TWA: 0.1 mg/m ³		TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³

Occupational exposure controls

Engineering measures

Local exhaust ventilation w >90% efficiency.

General Information

If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers. These recommendations apply to the product as supplied.

Respiratory protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Eye/face protection

Eye protection recommended. Chemical goggles consistent with EN 166 or equivalent.

Skin and body protection

Wear suitable protective clothing. Protective shoes or boots.

Hand protection

Protective gloves: Neoprene gloves, Polyvinylchloride, Natural Rubber

Hygiene measures

Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Wash hands before breaks and after shifts. Keep work clothes separate, remove contaminated clothing - launder after open handling of product.

9. Physical and chemical properties

Appearance	Crystalline solid
Color	white
Physical state	solid
Odor	odorless
Odor Threshold	not applicable
pH	6.4 (1% solution)
Melting Point/Range	100 °C
Freezing point	not applicable
Boiling Point/Range	Decomposes
Flash Point	Not flammable
Evaporation rate	not applicable
Autoignition Temperature	No evidence of combustion up to 600°C
Vapor pressure	6.07E-30 mm Hg at 25°C
Vapor density	No information available.
Relative density	1.39
Molecular Weight	270.31

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Water solubility	> 60 g/25
Percent volatile	No information available.
Partition coefficient:	No information available. (inorganic)
Viscosity	No information available. (Solid) > 100 (assume)
Explosive properties	Not explosive
Oxidizing properties	Oxidizer

10. Stability and reactivity

Stability	Stable.
Conditions to avoid	Heat (Decomposes at 275 °C), Moisture
Materials to avoid	Acids, Bases, Halides, Oxidizing agents, Strong reducing agents, Combustible materials,
Hazardous decomposition products	None known .
Hazardous polymerization	Hazardous polymerization does not occur.
Hazardous reactions	<p>Use of persulfates in chemical reactions requires appropriate precautions and design considerations for pressure and thermal relief.</p> <p>Decomposing persulfates will evolve large volumes of gas and/or vapor, can accelerate exponentially with heat generation, and create significant and hazardous pressures if contained and not properly controlled or mitigated.</p> <p>Use with alcohols in the presence of water has been demonstrated to generate conditions that require rigorous adherence to process safety methods and standards to prevent escalation to an uncontrolled reaction.</p>

11. Toxicological information

Acute effects

LD50 Oral	1130 mg/kg (rat) (Potassium Persulfate)
LD50 Dermal	> 10000 mg/kg (rat) (Potassium Persulfate)
LC50 Inhalation:	> 42.9 mg/L (rat) (Potassium Persulfate)

Sensitization	Sensitizing to skin and respiratory system.
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Chronic Toxicity

Carcinogenicity	Did not show carcinogenic effects in animal experiments
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Mutagenicity	In vivo tests did not show mutagenic effects. In vitro tests did not show mutagenic effects.
Target Organ Effects	Eyes, Skin, Respiratory system.

12. Ecological information

Ecotoxicity

Not expected to have significant environmental effects, based on data for similar substances.

Persistence and degradability	Biodegradability does not pertain to inorganic substances.
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Bioaccumulation	Does not bioaccumulate.
Mobility	Dissociates into ions.
Other adverse effects	None known

13. Disposal considerations

Waste disposal methods	This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261). It must undergo special treatment, e.g. at suitable disposal site, to comply with local regulations.
RCRA D Waste Code	D001 (ignitable)
Contaminated packaging	Dispose of in accordance with local regulations.

14. Transport information

DOT

UN/ID No	1492
Proper shipping name	Potassium Persulfate
Hazard Class	5.1
Packing group	III

TDG

UN/ID No	1492
Proper shipping name	Potassium Persulfate
Hazard Class	5.1
Packing group	III

ICAO/IATA

UN/ID No	1492
Proper shipping name	Potassium Persulfate
Hazard Class	5.1
Packing group	III
Description	oxidizer

IMDG/IMO

UN/ID No	1492
Proper shipping name	Potassium Persulfate
Hazard Class	5.1
Packing group	III

15. Regulatory information

International Inventories

TSCA Inventory (United States of America)	Complies
DSL (Canada)	Complies
NDSL (Canada)	Complies
EINECS/ELINCS (Europe)	Complies
ENCS (Japan)	Complies
IECSC (China)	Complies
KECL (Korea)	Complies
PICCS (Philippines)	Complies
AICS (Australia)	Complies
NZIoC (New Zealand)	Complies

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U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	yes
Chronic Health Hazard	no
Fire Hazard	yes
Sudden Release of Pressure Hazard	no
Reactive Hazard	no

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

International Regulations

Mexico - Grade No information available.

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

C Oxidizing materials
D2A Very toxic materials
D2B Toxic materials



16. Other information

HMIS	Health Hazard 1	Flammability 1	Stability 1	Special precautions J
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NFPA/HMIS Ratings Legend

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Reason for revision: Format Change.

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End of Material Safety Data Sheet